

Wii U Disc Writer

R-Disc Writing Tool for Wii U Development Machine

2013/09/19

Version 1.4

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1 Overview

Wii U Disc Writer features are as follows:

- Can write data files to the disc.
- Can write disc image files created by the mastering tool to the disc.
- Can convert the master archive file into a disc image file and then write it to the disc.
- Can write the same image file to multiple Wii U Disc Writer drives at the same time.

2 Operation-Tested Environment

This software runs in the following environment.

Table 2-1 Operation-Tested Environments

Item	Description
Computer	A computer with an SATA interface to which the Wii U Disc Writer drive can connect
Operating system	Windows 7 Professional (Service Pack 1 or later) Windows 7 Ultimate (Service Pack 1 or later)
	Microsoft .NET Framework 3.5 Service Pack 1
Number of hardware connections	Up to eight hardware connections can be used when writing by using Gang
Compatible media	CAT-R Disc

2.1 Operation-Tested Interface Card

If the SATA interface on the PC is not enough, add a commercially available SATA interface card to connect up to 8 drives. By using an eSATA conversion box, it is also possible to use an external drive.

Operation-tested interfaces and external drives are as follows.

Table 2-2 Operation-Tested Interfaces and External Drives

Manufacturer	Product Name (Model No.)	Specification
Ratoc Systems	RS-EC5ES-BK	External SATA↔eSATA conversion box
Ratoc Systems	REX-PE34-Z	PCI-Express x8 eSATA 4 ports (along with RS-EC5ES-BK)
Ratoc Systems	REX-PE6S	PCI-Express x1 SATA 2 ports
Kuroutoshikou	SATA2I4-LPPCI	PCI SATA 4 ports
Kuroutoshikou	SATA3I2-PCIe	PCI-Express x1 SATA 2 ports
Century	CIF-SATAP2R	PCI SATA 2 ports

Manufacturer	Product Name (Model No.)	Specification
Century	CIF-eSATAP2	PCE-Express x1 eSATA 2 ports (along with RS-EC5ES-BK)
Sanwa Supply	USB-CVIDE3	USB3.0⇔SATA conversion
Freedom	FHC-241	USB2.0⇔SATA conversion
Freedom	FHC-240	USB3.0⇔SATA conversion

3 Cautions and Restrictions

- Common
 - If this software is shut down (canceled) in the middle of writing, the CAT-R disc will be unusable.
 - Do not run the CUI version and the GUI version at the same time.
 - While writing or verifying, do not modify, delete, or overwrite the input file.
 - When a master archive file is specified for an input file, pay attention to the available space because a disc image should be output to the same directory as the input file. Even if the software shuts down, the disc image will not be deleted.
- GUI Version
 - This software, at the time of startup, recognizes up to 8 Wii U Disc Writer drives as Gang-intended devices.
 - Before running this software, make sure that Wii U Disc Writer drives and the computer are connected properly.
 - When a Gang-intended device is added, restart this software.

4 CUI Version

This section describes the character user interface (CUI) version of specifications.

4.1 Startup

To start, enter `wuwt` at a command prompt.

If starting up without any startup option, a list of options is displayed.

While this version is running, use the ESC key to cancel processing.

4.2 Startup Options

Set writing tool behavior by specifying one or more of the following options at startup.

Table 4-1 Startup Options

Option	Description
<code>--write</code>	Perform writing. During the write process, press ESC to cancel writing. Requires <code>--file</code> and <code>--drive</code> .
<code>--open</code>	Open the tray. If specified along with the <code>--write</code> option, open the tray after writing. Requires <code>--drive</code> .
<code>--close</code>	Close the tray.
<code>--list</code>	Display the list of currently available drives.
<code>--file=<file></code>	Specify an input file (<file>).
<code>--drive=id</code>	Specify the drive to write to. Select a drive number (1) or drive letter (A-Z) as shown by the <code>--list</code> option. To select all drives, enter zero (0) or an asterisk (*).
<code>--verify</code>	Verify after writing. Requires <code>---file</code> and <code>--drive</code> . During verification, press ESC to cancel verification.
<code>--logdir=<dir></code>	Output the drive access log for the specified directory (<dir>). This option is useful for debugging the writing tool. You normally should not use it. A separate log file is created for each drive.

4.2.1 --write

Perform writing.

It is also necessary to specify the `--file` option and `--drive` option at the same time.

If multiple drives are specified with the `--drive` option, start writing after all drives become ready.

Example

Write a disc image `game.wum` to all drives.

```
>wuwt --write --file=game.wum --drive=0
```

4.2.2 --open

Open the tray.

It is also necessary to specify the `--drive` option at the same time.

If the `--write` and `--verify` options are not specified, open the tray of the specified drive and then end.

If the `--write` and `--verify` options are specified, open the tray after writing and verifying.

Example

Open the tray of Drive E.

```
>wuwt --drive=E --open
```

4.2.3 --list

Display the list of Wii U Disc Writer drives connected to the PC.

Example

Display the drive list.

```
>wuwt --list
```

```
#1 (D:)  MATSHITA BLD-WRITER      A002 10/12/11 No Disc
#2 (E:)  MATSHITA BLD-WRITER      A002 10/12/11 Blank Disc
```

4.2.4 --file

Specify an input file.

The format is `--file=<file>`.

If the extension of the specified filename is either `.wumad` or `.wumap`, recognize the file as a master archive file and then call `MakeDiscImage.exe` to generate the disc image.

For other extensions, recognize the file as a full disc image file.

Example

Write a master archive file `game.wumad` to Drive E.

```
>wuwt --write --file=game.wumad --drive=E
```

4.2.5 --drive

Specify the drive to write to.

Available drives are indicated by the drive number or drive letter shown by using the `--list` option.

To select all drives, enter zero (0) or an asterisk (*).

Example

Open the drive D and drive E trays.

```
>wuwt --drive=DE --open
```

4.2.6 --verify

Verify after writing.

It is necessary to specify the `--file` option and `--drive` option at the same time.

If specified along with the `--write` option, verification will take place after writing.

Compare the input file and media to see if they match.

Example

Verify drive D media.

```
>wuwt --drive=D --verify --file=game.wum
```

4.2.7 --logdir

Output the drive access log for the specified directory.

The format is `--logdir=<dir>`.

This option is for debugging the writing tool. You normally should not use it. A separate log file is created for each drive specified.

Example

Output log.

```
>wuwt --logdir=c:\log
```

4.3 Exit Code

If the CUI version of writing software exits normally, it shuts down with the exit code zero (0). If it fails, it shuts down with a nonzero exit code.

Exit codes and their meanings are as follows.

Table 4-2 Exit Code List

Code	Meaning
0x0000	Normal termination.
0x0001	A startup option is not valid.
0x0002	Writing was canceled.
0x0003	Target drives cannot be found.

Code	Meaning
0x0004	The input file is not valid.
0x0005	A master archive file conversion error has occurred.
0x0006	No drive is specified.
0x0007	A critical error occurred.
0x0008	The specified drive is not ready.
0x0009	Abnormal termination. (If multiple drives are specified, any one of them has ended abnormally.)
0x000A	Failed to generate the disc image. (The MakeDiscImage exit code is nonzero.)

4.4 Error Messages

The following errors can occur in the CUI version of writing software.

Table 4-3 Error Messages

Error Message	Meaning
Drive not ready	No blank media is inserted.
Invalid input file	The specified input file is invalid. (The file size does not match the media size.)
Invalid option 'option'	The command line option is unrecognizable, or parameters are invalid.
No drive is specified	Although <code>--write</code> , <code>--open</code> , and <code>--close</code> are specified, no <code>--drive</code> option is specified.
A drive cannot be found	No writable drive can be found.
No file to write is selected	The <code>--open</code> , <code>--close</code> , and <code>--write</code> options are not specified, but the <code>--drive</code> option is specified.
Cancelled	The user canceled processing.
Failed to open the device	The device failed to open for some cause. It usually does not occur.
Drive not ready	No valid media is inserted in the drive.
Failed to eject	An error occurred while ejecting.
Failed to finalize	An error occurred during finalizing after writing.
Failed to load	An error occurred during loading of media.

For example, if the error code is 00:00023001, the error class being 00, it will indicate that a disc drive control error has occurred. The error detail will say Sense Key=02,ASC=30,ASC Q=1, which should indicate that “CANNOT READ MEDIUM UNKNOWN FORMAT”.

4.5 Execution Screen

This section describes what it looks like when running the CUI version of writing software.

4.5.1 Writing Example

When writing a file `DiscImage.wum` to Drive E and Drive F, the screen may look like this.

Figure 4-2 Example—Writing a File `DiscImage.wum` to Drive E and Drive F

```
C:\>wuwt --drive=EF --write --verify --file=DiscImage.wum

wii u disc writing tool version 0.9.0.0

Drive   : #1(E:) #2(F:)
File    : DiscImage.wum
Open    : No
Close   : No
Write   : Yes
Verify  : Yes
Test    : No

Checking the media
Drive #1(E:) : No disc
Drive #1(E:) : Disk spin-up in progress
Drive #1(E:) : Ready
Drive #2(F:) : Ready

  Drive   State      Elapsed Time      Progress
  #1(E:)  Writing      00:01:29      |#####.....| 42.4%
  #2(F:)  Writing      00:01:29      |#####.....| 42.4%
```

5 GUI Version

This section describes the graphic user interface (GUI) version of specifications.

5.1 Startup and Shutdown

Select the GUI version of writing software `wuwriter.exe` and then run it, or double-click the icon  on the screen to open the main window.

To exit, click **X** on the main window or **Close**.

* The software can be shut down while writing or verifying. If the software is shut down in the middle of writing, the media undergoing writing will be unusable.

5.2 Screen Explanation

This section describes what the GUI version of writing software looks like on the screen.

5.2.1 Main Window

Figure 5-1 shows the main window. The window is described following the figure.

Figure 5-1 Main Window

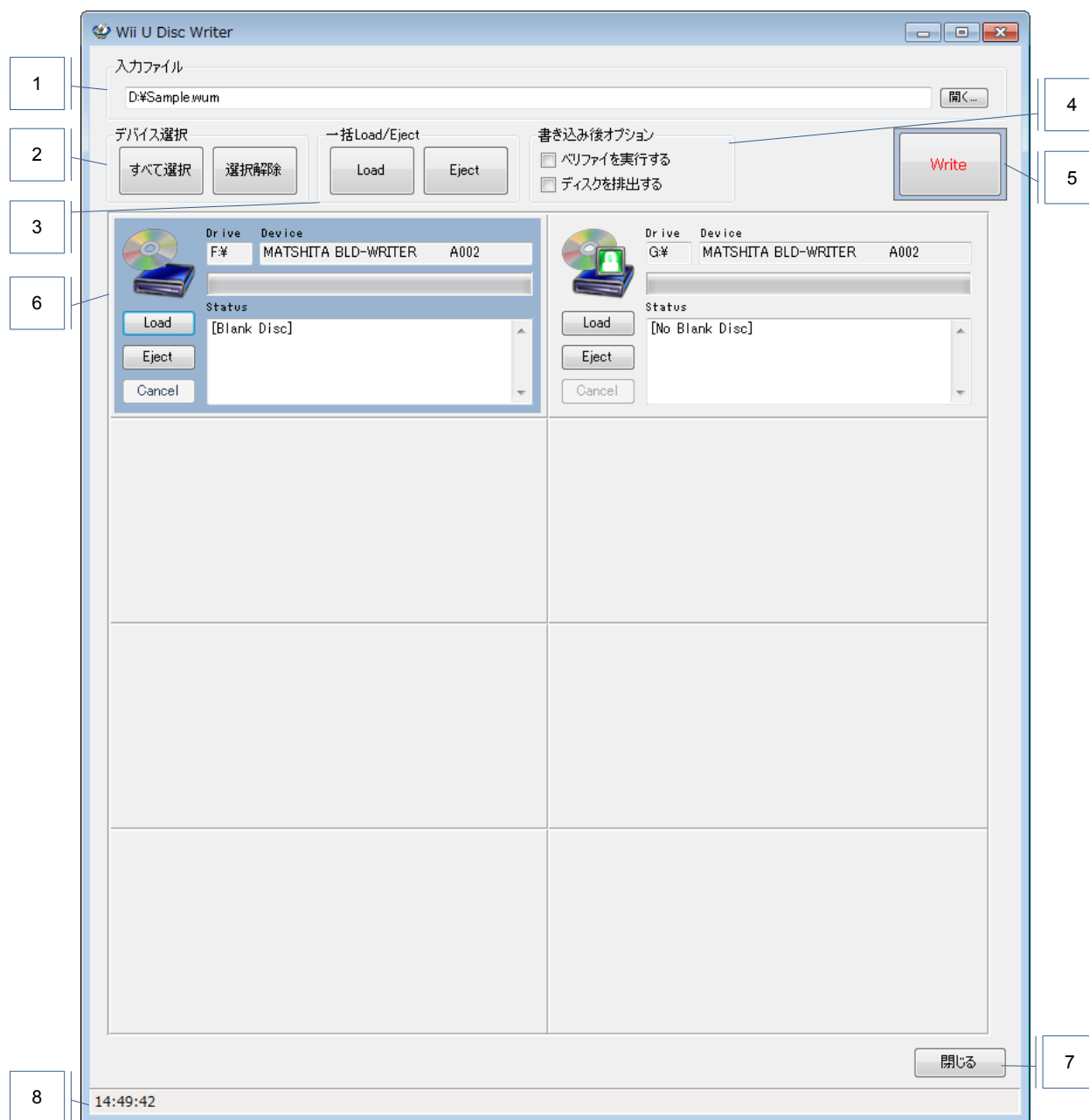


Figure 1 Main Window

1. Input File

Select the data file (master archive file, disc image file) to write.

A file can be specified in the following manner:

- Open the file path directly.
- Click **Open**, and then select a file from the **File Reference** dialog box.

-
- Drag the file.

* Cannot be used while writing to the disc.

2. Device Selection Buttons

- **Select All:** Select all devices displayed in the Device Field.
- **Release All:** Deselect all devices displayed in the Device Field.

* The background color of a selected device changes to blue in the Device Field.

* Cannot be used while writing to the disc.

3. Batch Load/Eject Buttons

- **Load All:** Read all discs on the devices selected in the Device Field at once.
- **Eject All:** Open all disc trays of devices selected in the Device Field at once.

* Cannot be used if no device is selected or while writing to the disc.

4. Post-Write Options

- **Auto-Verify** Specifies whether to verify when writing completes.
- **Auto-Eject** Specifies whether to open the disc tray after writing completes.

* Cannot change while writing to the disc.

5. Write Button

Write to the disc.

* Cannot be used while writing to the disc.

6. Device Field

There is a field for each device (see Section 5.2.2 Device Field).

Up to eight devices can be displayed on the screen, left to right and top to bottom.

7. Exit Button

Exit the software.

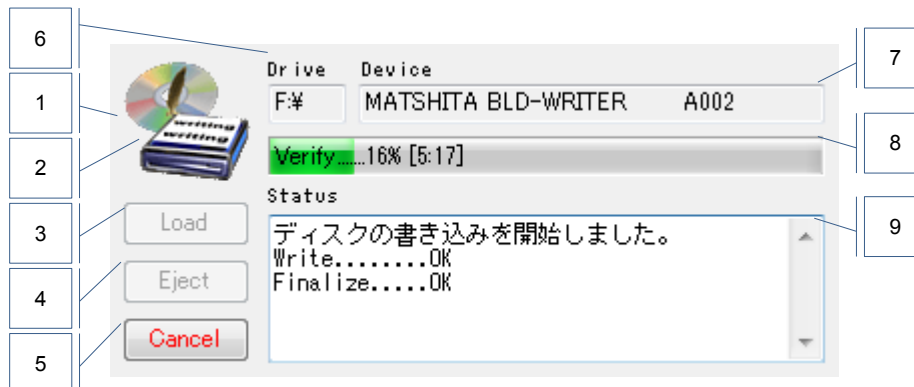
8. Status Bar

Display the current time on the computer.

5.2.2 Device Field

Figure 5-2 shows the Device Field. The field is described following the figure.

Figure 5-2 Device Field



1. Device Selection

Background color indicates whether the device is selected.

Clicking the device field changes the background color to blue; the device selection state switches.

* Cannot change selection while writing to the disc.

2. Disc State

The following icons indicate the disc states.

Table 5-1 Disc States

Icon	Description
	No disc is inserted.
	A blank disc is inserted.
	A blank disc is not inserted.
	The wrong disc is inserted.
	Writing (animation).

3. Load Button

Close the disc tray, and then read the disc.

* Cannot be used while writing to the disc.

4. **Eject** Button

Open the disc tray.

* Cannot be used while writing to the disc.

5. **Cancel** Button

Cancel writing to the disc.

* Can be used only when writing to the disc.

6. Drive

Display the drive name.

7. Device

Display the device name.

8. Progress Status

Display writing progress, percentage of completion, and elapsed time.

[Progress Information]

Write..... XX%[h:mm:ss]	Writing progress is displayed by percentage.
Finalize... XX%[h:mm:ss]	Finalizing progress is displayed by percentage.
Verify..... XX%[h:mm:ss]	Verification progress is displayed by percentage.

9. Status

The following information is displayed:

- Disc State

[No Disc]	No disc is inserted.
[Blank Disc]	A blank disc is inserted.
[No Blank Disc]	A blank disc is not inserted.
[Wrong Disc]	The wrong disc is inserted.

- Writing Progress

Write.....OK [hh:mm:ss]	Writing Complete
Finalize.....OK [hh:mm:ss]	Finalizing Complete
Verify.....OK [hh:mm:ss]	Verification Complete

* [hh:mm:ss] displays the time it took for processing.

- Error information in case of an error

5.2.3 Disc Image Conversion

The **Disc Image Conversion** dialog box displays the conversion status and the **Cancel** button.

Figure 5-3 Disc Image Conversion Dialog Box



1. Disc Image Conversion Status

Display the disc image conversion status.

Info:[write]:XXXXXXXXXX/XXXXXXXXXXbytes(XX.X%)

2. **Cancel** Button

Cancel converting the disc image.

5.3 Writing

Writing steps are as follows:

1. Insert a blank disc into the drive.

Confirm that the icon in the Device Field changes from  to .

When writing via Gang, insert a blank disc into all target devices.

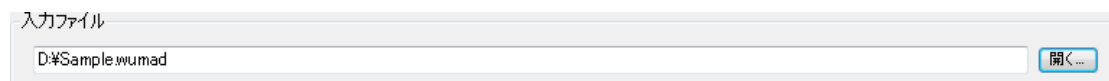
2. Click the device field to select devices to write to.

The background color of a selected device should change to blue.

To deselect a device, click on the device field again.

When writing via Gang, click on the target device field, or click **Select All** to select devices.

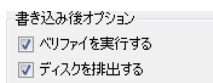
3. Specify a data file to write (master archive file or disc image file) for an input file (see item 1 in Figure 5-1).



4. Select Post-Write Options.

To verify after writing, select the **Verify** check box.

To eject the disc after writing, select the **Eject** check box for the disc (see item 4 in Figure 5-1).



5. Click **Write** to start writing.

If a **Wii U master archive file (.wumad)** is specified for an input file, writing starts after converting to the **disc image file (.wum)**.

After writing completes properly, the **Status** device field displays a confirmation message (**Writing to the disc has completed**) and the elapsed processing time.

- The **disc image file (.wum)** should be output into the same folder as the input file.
- To cancel converting the disc image, click **Cancel** in the **Disc Image Conversion** dialog box.
- To write via Gang, a blank disc must be inserted into all selected devices before writing will start. Insert a blank disc into the drive, or deselect the target device, click **Write** again.

Cautions

- Until writing to all selected devices is completed, **Write** and changing the device selection are disabled.
- Click **Cancel** in **Device Field** to stop writing. If the software is shut down in the middle of writing, the media undergoing writing will be unusable.

Revision History

Version	Revision Date	Category	Description
1.4	2013/09/19	Changed	2.1 Operation-Tested Interface Card Updated information about operation-tested interface cards. Changed description of <code>--list</code> option.
1.2	2012/08/20	Added	Added description of <code>--logdir</code> option.
1.1	2012/04/02	Changed	Modified <code>--file</code> option explanation.
1.0	2012/03/28	—	Initial version.

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